ABSTRACT

A de-noising algorithm that obtains an estimate of a noise-free portion of a noise-containing digital signal by applying a set of M linear transforms to the noise-containing digital signal, determining M initial de-noised estimates of each digital

5 element of the digital signal, deriving a combination of weight factors for the M initial de-noised estimates of each digital element by formulating the combination as a linear estimation problem and solving it for the individual weight factors, and formulating a final de-noised estimate of each digital element based on the corresponding M initial de-noised estimates and the combination of weight factors.

10 The combination of weight factors is an optimal combination that is derived such that a conditional mean squared error with respect to the initial de-noised estimates is minimized. The optimal determination is further determined based on a scaling factor that removes explicit dependence to noise variance and on one of several matrices.